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Production Constraints Faced by Mandarin Cultivators in Kokrajhar District of Assam-A Case Study

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A B S T R A C T

Kokrajhar one of the 33 districts of Assam is under Bodoland Territorial Council comprising of BTAD headquarter and lies in between 89^0 46'E to 90^0 38'E longitudes and 26^o 19'N to 26^o54'N latitudes. The district is the natural home of many citrus species. Among the different citrus spp. grown in the district, Khasi mandarin (*Citrus reticulata* L. Blanco) is the most economically important and grown commercially. Even though a favourable agro-climatic condition prevails in the district, however the production is low. A study was conducted with 105 numbers of farmers of Kokrajhar, Dotma and Gossaigaon block of Kokrajhar district to analyse the production constraints of Khasi mandarin. The production constraints were categorised as technological constraint, marketing constraints, infrastructural constraints and financial constraints. The study revealed that out of the technological constraints, lack of knowledge on scientific crop production ranked I (85.71%) and lack of high yielding quality planting materials ranked II (81.90%). In regard to marketing constraints, lack of remunerative price of produce ranked I (82.86%) and shortage of dedicated market shed ranked II (72.38%). Among infrastructural constraints, lack of irrigation facility ranked I (84.76%) and shortage of processing facility ranked II (74.29%), whereas out of the financial constraints, lack of capital for expansion of area ranked I (71.43%) and non-availability of timely credit facilities ranked II (64.76%).

Introduction

Khasi mandarin (*Citrus reticulata* Blanco) also known as loose-skinned orange belongs to the family rutaceae is one of the commercially important and worldwide accepted fruits. In India, citrus holds a prominent place among the major commercial fruits covering an area of about 985 thousands ha with an annual production of 11,419 thousands metric tonnes and productivity of 11.59 t/ha (National Horticulture Board, 2016-17).

In NE Region, Khasi mandarin covers an area of 117.89 thousand ha, with production of 672.78 thousands metric tons, whereas in Assam it covers an area of 17.55 thousand ha with 236.01 thousands metric tons (Horticultural Statistics at a glance, 2017).

The NE region of India is considered as one of the natural home or primary gene centre (Ray and Deka, 2000 and Ghosh, 2007) and reservoir of various *Citrus* species including mandarin orange (Hazarika, 2012). Meghalaya is the major state in both area and production in the northeast (Singh, 2001).

Mandarin orange cultivation plays a very important role in socio-economic upliftment of the farmers in NE India. The region has almost one third of the total area under mandarin cultivation, but the production is approximately close to one fifth of the total production of country that shows a huge gap between total area under plantation and total production. Moreover, little attention has been given towards the various problems faced by the growers in production and marketing of the khasi mandarin in the region.

In Assam, particularly in Kokrajhar district mandarin is an important fruit crop mostly produced in homesteads, some commercial orchards also found. However, the productivity is not up to the mark in comparison with other mandarin growing states.

The main reasons for low productivity are lack of quality planting materials, lack of knowledge on scientific production techniques, low availability of quality inputs, occurrence of pest and diseases, lack of remunerative prices, involvement of middleman etc.

Therefore, the commercial mandarin orchards as well as the homestead mandarin gardens are facing severe setbacks due various production, marketing as well as other constraints prevailing in the districts.

If these constraints in the production and marketing of khasi mandarin are identified and feasible suggestions are made to overcome these constraints, then the production of mandarin oranges can be increased further in the district. In view of this, the present study was undertaken to study various constraints faced by khasi mandarin growers and suitable suggestions were made to overcome those constraints in the Kokrajhar district.

Materials and Methods

The present study was undertaken purposively in Kokrajhar district of Assam with 105 numbers of farmers during agricultural year 2018-19. A purposive cum random sampling technique was adopted to select the ultimate sample.

From the selected district, three Rural Development Blocks viz., Kokrajhar, Dotma and Gossaigaon were purposively selected at the first stage of sampling. In the second stage of sampling, 5 villages were selected from each block of the district. In the third stage of sampling, from each selected village, 7 numbers of mandarin orange growers were selected randomly to constitute a sample size of 105 mandarin growers in total.

Primary data were collected by personal interview method through semi-structured pre- tested interview schedule, which was followed by group discussion with to collect relevant data/information from respondents. As many as twenty-two (22) major items in different areas were finally identified which may be considered as the important constraints of mandarin orange cultivation in Kokrajhar district of Assam.

These identified constraints were grouped in four categories such as Technological, infrastructural marketing and financial. In order to ascertain the degree of seriousness of the problems and for taking up different extension efforts, the items were ranked based

on the percentage intensity of responses against each item.

Results and Discussion

The result of the study (Table.1) indicated that out of the technological constraints, technological constraints, lack of knowledge on scientific crop production ranked I (85.71%) and lack of high yielding quality planting materials ranked II (81.90%)

It is followed by lack of training on improved production practices (80%), occurrence of insect-pest and diseases (78.09%), lack of quality inputs nearby (76.19), lack of regular visit by extension personnel to villages (75.24%), lack of proper crop management approach (74.29%), moisture stress during critical crop growth period (70.48%), poor fertility status of soil (68.57%) ranked III, IV, V, VI, VII, VIII & IX respectively.

As regards to infrastructural constraints, lack of irrigation facility ranked I (84.76%) and shortage of processing facility ranked II (74.29%), which is followed by non-availability of storage facility (71.43%), lack of tools and implements for intercultural operations (66.67%) ranked III & IV.

Among, marketing constraints, lack of remunerative price of produce ranked I (82.86%) and shortage of dedicated market shed ranked II (72.38%), shortage of bulk buyers or processors ranked III (71.43%), improper transportation facility ranked IV (70.48%) and involvement of middleman ranked V (66.67%), whereas out of the financial constraints, lack of capital for expansion of area ranked I (71.43%) and non-availability of timely credit facilities ranked II (64.76%) and high cost of agricultural chemicals (63.81%), high cost of quality planting materials (61.90%) ranked III and IV respectively.

It is evident from the study, that there existed a wide gap between development of technologies and their transfer to the actual farming situations. Undoubtedly, Khasi mandarin has enormous potential for its commercialization in the district.

In Kokrajhar district mandarin is an important fruit crop mostly produced in homesteads, some commercial orchards were also found developed under Horticulture Mission for NEH. However, the productivity is not up to the mark in comparison with other mandarin growing states.

Even though commercialization of this particular crop has been started, it is still at a budding stage due to various constraints faced by the growers.

Therefore, these constraints perceived by the farmers could be overcome by following proper strategies like intensified training and awareness programme involving transfer of skill and knowledge on improved production technologies of Khasi mandarin among the farmers of the district.

In this regard, Krishi Vigyan Kendras, State Agricultural Departments and Regional Research Station of the district may take initiatives through technology transfer, regular visit and monitoring to the farmer's field and providing regular agro-advisory services.

Awareness programmes on good quality planting materials, and their distribution should be done by the State Agricultural Departments under Horticulture Mission for NEH.

Table.1 Production Constraints of Khasi Mandarin in Kokrajhar district (N=105)

Sl. No.	Constraints	Frequency (F)	Percentage (%)	Rank
A.	**Technological Constraints**			
1.	Lack of knowledge on scientific crop production	90	85.71	I
2.	Lack of high yielding quality planting materials	86	81.90	II
3.	Lack of regular visit by extension personnel to villages	79	75.24	VI
4.	Occurrence of insect-pest and diseases	82	78.09	IV
5.	Lack of quality inputs nearby	80	76.19	V
6.	Poor fertility of soil	72	68.57	IX
7.	Moisture stress during critical crop growth period	74	70.48	VIII
8.	Lack of proper crop management approach	78	74.29	VII
9.	Lack of training on improved production practices	84	80.00	III
	Average	**80.55**	**76.72**	-
B.	**Infrastructural Constraints**			
1.	Lack of irrigation facilities	89	84.76	I
2.	Lack of tools and implements for intercultural operations	70	66.67	IV
3.	Non-availability of storage facility	75	71.43	III
4.	Shortage of processing facility (value-addition)	78	74.29	II
	Average	**78.00**	**74.28**	-
C.	**Marketing Constraints**			
1.	Lack of remunerative price of produce/low selling price	87	82.86	I
2.	Non-availability/shortage of dedicated market shed	76	72.38	II
3.	Shortage of bulk buyers/processors	75	71.43	III
4.	Improper transportation facility	74	70.48	IV
5.	Involvement of middleman	70	66.67	V
	Average	**76.40**	**72.76**	-
D.	**Financial/Economical Constraints**			
1.	Lack of capital for expansion or re-planting	75	71.43	I
2.	Lack of timely institutional credit facility	68	64.76	II
3.	High cost of quality planting materials	65	61.90	IV
4.	High cost of agricultural chemicals	67	63.81	III
	Average	**68.75**	**65.48**	-

In this context the financial institutions may also extend their support by providing credit facilities in terms of short-term loan to the farmers. Moreover, the State Government should prepare policy to provide the minimum support price to the produce of the farmers, which will encourage the growers for extensive cultivation in the district.

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